Appl. No. 10/625,505   PATENT
Amdt. dated August 18, 2006
Reply to Office Action of May 19, 2006

REMARKS/ARGUMENTS

This Amendment is in response to the Office Action mailed May 19, 2006. Claims 1, 3-8, 11, 16, 20-23, 25, 27, 28, 30-32, and 34-40 were pending in the present application. Please note that the Office Action Summary incorrectly indicates in section 4a that several canceled claims are still pending and withdrawn in the present application. This Amendment amends claims 1, 4, 5, 7, 11, 16, 22, 30-32, and 34-38; cancels claims 8 and 39-40; and adds new claim 41; leaving pending in the application claims 1, 3-7, 11, 16, 20-23, 25, 27, 28, 30-32, 34-38, and 41. Reconsideration of the rejected claims and consideration of the newly presented claim is respectfully requested.

I.   Rejection under 35 U.S.C. §112

Claims 1, 4-8, 11, 16, 22, 32, and 35-40 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. In particular, claims 1, 4, 8, 11, 16, 22, 30, 32, 35, and 40 are rejected as reciting the limitations "set of input metrics" and "output metric." These claims have been amended to specify that each input parameter corresponds to a controllable aspect of the design, and each output metric corresponds to a variable parameter of the integrated circuit to be tracked or optimized during the compiling. Further, there is a substantial amount of support and description in the specification for these terms, and the use thereof, particularly in paragraphs [0024]-[0047] of the Applicants' specification. It is respectfully submitted that these terms as presently recited meet the written description requirement.

Further, support and description for the other pending and rejected claim terms can be found as follows:

"random fluctuation" in claims 5 and 36 is found, for example, in paragraph [0033];

"random seed" in claims 6 and 37 is found, for example, in paragraphs [0007], [0012], [0032], and [0033];

"effort level" in claims 7 and 38 is found, for example, in paragraphs [0039], [0048], and [0055];

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as per the limitations in claim 11, various limitations for input parameters are described in paragraphs [0031]-[0051].

It is respectfully submitted that these terms are adequately described in the specification and as presently recited meet the written description requirement.

Claims 1, 3-8, 11, 16, 20-23, 25, 27-28, 30-32, and 34-40 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The language rejected in these claims is similar to that rejected and discussed above with respect to §112, first paragraph. As amended, it is respectfully submitted that these claims point out and distinctly claim the subject matter which applicant regards as the invention as discussed above.

Claims 3, 20-21, 23, 25, 27-28, 31, and 34 are also rejected under §112 as depending on the claims rejected above. As the claims from which these claims depend have been amended and should meet all the requirements of §112, it is respectfully submitted that these claims also should meet the requirements of §112.

Applicants therefore respectfully request that the rejection with respect to claims 1, 3-8, 11, 16, 20-23, 25, 27-28, 30-32, and 34-40 be withdrawn.

II. Rejection under 35 U.S.C. §101

Claims 1, 3-8, 11, 16, 20-23, 25, 27-28, 30-32, and 34-40 are rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. As amended, these claims are all directed to a method in a computer system. Further, these claims recite the performance of multiple compilations using various input parameter values to produce output metrics, or output values, that are used to optimally synthesize a design for an integrated circuit. It is respectfully submitted that these claims as amended therefore recite statutory subject matter, and Applicants request that the rejection with respect to claims 1, 3-8, 11, 16, 20-23, 25, 27-28, 30-32, and 34-40 be withdrawn.

III.   Rejection under 35 U.S.C. §102

Claims 1, 3-8, 11, 16, 20-23, 25, 27-28, 30-32, and 34-40 are rejected under 35 U.S.C.

§102(b) as being anticipated by *Karchmer* (Sweeper.tcl, Version 2.3 Beta 05/02/2002).

Applicants respectfully submit that *Karchmer* does not disclose each element of these claims.

For example, Applicants' claim 1 as amended recites a method in a computer system for

compiling a design for an integrated circuit, the method comprising:

> **performing multiple compilations of the design using a series of values for each input
> parameter in a set of input parameters for the design,** each input parameter corresponding to a
> controllable aspect of the design, **to generate output values for one or more output metrics**
> based on the series of values, each output metric corresponding to a variable parameter of the
> integrated circuit to be tracked or optimized during the compiling, **the series of values including
> random values that are automatically selected for the multiple compilations;**
> **concluding the performing of multiple compilations when an output value for at
> least one of the output metrics reaches a pre-selected stopping criteria; and**
> determining optimal values for the input parameters based on the multiple compilations,
> the optimal values operable to be used to synthesize the design

(*emphasis added*). Such limitations are not disclosed by *Karchmer.*

Karchmer discloses a script for fitting a layout for an FPGA by using various seeds, or

starting points, for the fitting algorithms during "multiple compiles" (pages 2-3 of the printout

provided with the Office Action). *Karchmer* discloses using a list of seeds, or a range of seeds,

as specified by the user (page 4). *Karchmer* discloses doing a compile for each of these seeds

specified by the user, then finishing with the results from the "best compile" (page 4). The

compiling also can be stopped by the user via a Stop Compiler option (page 5). The user is also

allowed to choose which is the best compile (page 4).   Unless specified to save the data for each

compile, the system will only save data for the best compile (pages 4-5).

Karchmer does not disclose automatically selecting a series of random values for a set

input parameters, as *Karchmer* instead uses seed values specified by the user. Further, the

compiling of *Karchmer* stops when either a compile has been done for all of the user-specified

seeds, or when the user manually stops the procedure. *Karchmer* does not disclose setting a

stopping criteria such that when an output value for at least one output metric reaches the pre-

selected stopping criteria, the compiling process stops. *Karchmer* does not use automatically-

generated random input values, and instead relies on a discrete number or range of values as

specified by the user, so that only a fixed number of compiles are run. There is no suggestion of

a motivation to use an output metric value-based stopping criteria with the fixed iterations and values of *Karchmer*. As *Karchmer* does not disclose or suggest such limitations, *Karchmer* cannot anticipate or render obvious Applicants' claim 1 or the claims that depend therefrom. The other pending claims recite limitations that similarly are neither disclosed nor suggested by *Karchmer*, such that these claims also cannot be anticipated or rendered obvious. Applicants therefore respectfully request that the rejection with respect to claims 1, 3-8, 11, 16, 20-23, 25, 27-28, 30-32, and 34-40 be withdrawn.

IV.   Amendment to the Claims

Unless otherwise specified, amendments to the claims are made for purposes of clarity, and are not intended to alter the scope of the claims or limit any equivalents thereof. The amendments are supported by the specification and do not add new matter.

V.   Newly Presented Claims

Claim 41 has been added to allow the limitation previously recited in claim 1 (and previously in claim 2) to instead depend from claim 1 as amended. This claim is supported by the specification and does not add new matter. Applicants therefore respectfully request consideration of newly presented claim 41.

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CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this

Application are in condition for allowance. The issuance of a formal Notice of Allowance at an

early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of

this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

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